

# EXHIBIT A

**DECLARATION OF CATHERINE L. TROISI**

1. My name is Catherine L. Troisi. I am over the age of eighteen (18) years, of sound mind, and in all respects competent to testify. The facts stated herein are true, correct, and within my personal knowledge.
2. My title is Associate Professor, Department of Management, Policy, and Community Health and Department of Epidemiology, Human Genetics, and Environmental Sciences and Center for Infectious Diseases, University of Texas Health Science Center at Houston, School of Public Health (UTSPH); Adjunct Associate Professor at Baylor College of Medicine.
3. I am an elected Executive Board Member of the American Public Health Association, a Board Member of International Network of Epidemiology in Policy, an Elected Fellow, Texas Public Health Association, and a member of the American College of Epidemiology. I have received several awards and honors including the Excellence in Community Service Award, UTSPH, 2013 and 2019, the Association of Schools and Programs in Public Health Service Award, 2018. I was elected to Sigma Xi (Scientific Honor Society) in 1979, received a fellowship from the University of Michigan 1977-1980, and was a Eugene B. Casey Fellow at Baylor College of Medicine. I have given invited Legislative Testimony to the US House of Representatives Committee on Homeland Security, Ebola Preparedness, October 2014 Dallas, TX, Governor Perry's Task Force on Public Health Prevention, Ebola Preparedness, October 2014, Austin, TX, Texas House County Affairs Committee, Syringe Exchange Programs, April, 2019, Austin, TX, and expert testimony in the Texas 21<sup>st</sup> Judicial District, Travis County, Texas Democratic Party, *et al* vs. Dana Debeauvoir and the State of Texas, April 2020.
4. I have a B.A. in Chemistry from The University of Rochester (NY) in 1974, an M.S. in Biochemistry from Michigan State University in 1975, and a PhD in Epidemiologic Sciences from The University of Michigan in 1980, specializing in influenza studies. I completed a postdoctoral position at Baylor College of Medicine in the Department of Virology and Epidemiology. I am a graduate of the National Public Health Leadership Institute at the University of North Carolina and have received post-doctoral training in epidemiologic techniques and public health preparedness.
5. My forty-year career in public health has been in the area of infectious disease epidemiology specializing in viruses. I was on the faculty in the Department of Virology and Epidemiology at Baylor College (name was changed to Department of Molecular Virology during my tenure there) from 1983-1996, joined the faculty at University of Texas Health Science Center at Houston School of Public Health in Disease Control and Biological Sciences in 1997. I left academia in 2003 for seven years to practice public health at the Houston Health Department, beginning as Bureau Chief for HIV/STD and Viral Hepatitis Prevention, was promoted to Assistant Director of the Health Department, overseeing the Division of Prevention and Communicable Diseases, and finally creating and filling a new position as Director of Public Health Practice. I rejoined the UTSPH



faculty in 2010, in the Departments of Management, Policy, and Community Health and Epidemiology, Human Genetics, and Environmental Sciences and the Center for Infectious Diseases.

6. I was Incident Commander in the National Incident Management System structure (i.e., in charge of the Houston Health Department's response) in 2009 for the H1N1 influenza pandemic, a respiratory virus.
7. Attached and incorporated by reference to this declaration is a copy of my curriculum vitae.
8. Covid-19 infection is caused by the SARS-CoV-2 virus and is spread by the respiratory route (through the air and through mucous membranes) and by what are referred to as fomites, environmental surfaces that are contaminated with the virus. Infectious virus also can be found in feces, although importance of this in transmission is not known.<sup>1</sup> Reported illnesses have ranged from no to mild symptoms to severe illness and death. Symptoms can include fever, dry cough, and shortness of breath. We are learning that the virus can cause damage in addition to the respiratory injuries incurred and the virus can affect many of the body's organs including heart, kidney and intestines.<sup>2</sup> When severe, COVID-19 is a systemic illness characterized by hyperinflammation, cytokine storm, and elevations of cardiac injury biomarkers.<sup>3</sup> Forty percent of deaths are due to cardiac damage and these serious consequences can occur after respiratory symptoms are resolved.<sup>4</sup> There are reports of some individuals who clear the infection but suffer sequelae for months.<sup>5</sup> Children generally do not have severe disease but recently there has been recognition of multi-system inflammatory syndrome in SARS-CoV-2 infected children.<sup>6</sup>
9. According to the CDC, certain groups such as those over 65 years of age and those with certain underlying medical conditions, (including chronic lung disease including moderate to severe asthma, chronic heart disease, diabetes, obesity, chronic kidney disease, liver disease, immunosuppression) are at higher risk of serious illness and death.<sup>7</sup> However, anyone can be infected with covid-19 and suffer serious outcomes.<sup>8</sup> Rates of hospitalization increase with age.<sup>9</sup>
10. Racial minorities have been particularly affected by this pandemic for a number of reasons. They are more likely to get infected due to increased possibility of exposure

<sup>1</sup> [https://wwwnc.cdc.gov/eid/article/26/8/20-0681\\_article](https://wwwnc.cdc.gov/eid/article/26/8/20-0681_article) accessed 6/6/20

<sup>2</sup> [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)30937-5/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30937-5/fulltext) accessed 6/6/20

<sup>3</sup> *ibid*

<sup>4</sup> <https://jamanetwork.com/journals/jamacardiology/fullarticle/2763843> accessed 6/6/20

<sup>5</sup> [https://www.theatlantic.com/health/archive/2020/06/covid-19-coronavirus-longterm-symptoms-months/612679/?utm\\_source=email&utm\\_medium=cr&utm\\_campaign=jeff-letter-actives&utm\\_content=20200606&silverid-ref=NjIzNjE1NzU4MjkxS0](https://www.theatlantic.com/health/archive/2020/06/covid-19-coronavirus-longterm-symptoms-months/612679/?utm_source=email&utm_medium=cr&utm_campaign=jeff-letter-actives&utm_content=20200606&silverid-ref=NjIzNjE1NzU4MjkxS0) accessed 6/5/20

<sup>6</sup> <https://emergency.cdc.gov/han/2020/han00432.asp> accessed 6/6/20

<sup>7</sup> <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-at-higher-risk.html> accessed 6/7/20

<sup>8</sup> <https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html> accessed 4/11/20

<sup>9</sup> [https://www.cdc.gov/mmwr/volumes/69/wr/mm6915e3.htm?s\\_cid=mm6915e3\\_w](https://www.cdc.gov/mmwr/volumes/69/wr/mm6915e3.htm?s_cid=mm6915e3_w)



(crowding, essential jobs that interact with the public) and, once infected, experience worse outcomes. Race and ethnicity has not been routinely captured on test result reporting to health departments, although that will change in a few months, but we do have hospitalization data showing Blacks are overrepresented among hospitalized covid-19 patients compared to the hospital catchment area.<sup>9</sup>

11. Scientists estimate that between 40-45% of infected individuals will never show symptoms although they can transmit the virus to others, up to 14 days following infection and we do not know if they will suffer long term effects from the virus.<sup>10</sup>
12. The novel coronavirus is detected through use of a reverse-transcriptase polymerase chain reaction (RT-PCR) test.<sup>11</sup> Serologic tests which detect antibodies to the virus have been developed although sensitivity and specificity of the tests are not optimal<sup>12</sup>. There has not been adequate testing for the virus anywhere in the United States, including Texas, due to a lack of test kits, lack of testing supplies, and lack of personal protective equipment to protect those healthcare workers taking samples.<sup>13,14</sup>
13. Within my area of expertise, social distancing, frequent handwashing, and environmental disinfection are the only ways to limit the spread of the virus<sup>15</sup>, as there is no FDA-licensed vaccine that could be administered to elicit immunity to the virus. Social (also called physical) distancing is a proven method to stop spread of viruses spread through the respiratory route such as the novel coronavirus<sup>16</sup>. The novel coronavirus is spread through droplet transmission. These droplets are produced through coughing, sneezing, talking, singing. The droplets are fairly heavy, and most studies have shown they can't travel more than about 6 feet<sup>17</sup>, although under certain circumstances, they can travel a longer distance.<sup>18</sup> Social distancing refers to maintaining a distance of at least 6 feet between persons. The virus can be spread when, for example, an infected person coughs into their hand and touches a polling machine screen; another person then touches that polling machine screen and without washing their hands, touches their eye. The second person can become infected this way.<sup>19</sup> Infected persons can spread virus to others whether or not they have symptoms and we are learning that this is a very infectious virus that can be spread not just by coughing but by speaking and singing.<sup>20</sup>

<sup>10</sup> <https://www.acpjournals.org/doi/10.7326/M20-3012>

<sup>11</sup> <https://jamanetwork.com/journals/jama/fullarticle/2762997>

<sup>12</sup> <https://www.the-scientist.com/news-opinion/why-the-accuracy-of-sars-cov-2-antibody-tests-varies-so-much-67513> accessed 6/6/20

<sup>13</sup> <https://www.nytimes.com/2020/03/28/us/testing-coronavirus-pandemic.html>

<sup>14</sup> <https://www.wbur.org/onpoint/2020/03/18/covid-19-testing-in-the-u-s>

<sup>15</sup> <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html> accessed 4/10/20

<sup>16</sup> <https://www.nap.edu/catalog/25753/rapid-expert-consultation-on-social-distancing-for-the-covid-19-pandemic-march-19-2020>

<sup>17</sup> [https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html?CDC\\_AA\\_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fprepare%2Fprevention.html](https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fprepare%2Fprevention.html)

<sup>18</sup> <https://jamanetwork.com/journals/jama/fullarticle/2763852>

<sup>19</sup> <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cleaning-disinfection.html> accessed 4/10/20

<sup>20</sup> [https://www.jwatch.org/na51616/2020/06/01/you-can-speak-and-sing-covid-19?query=C19&cid=DM93011\\_NEJM\\_Registered\\_Users\\_and\\_InActive&bid=207638425](https://www.jwatch.org/na51616/2020/06/01/you-can-speak-and-sing-covid-19?query=C19&cid=DM93011_NEJM_Registered_Users_and_InActive&bid=207638425) accessed 6/6/20



14. Any place where people gather and cannot maintain physical distancing, such as a polling place, represent a heightened danger for transmission of covid-19 disease. Due to the possibility of close proximity (less than 6 ft) of voters, between poll workers, and between voters and poll workers as well as transmission of the virus on polling machine screens and other environmental surfaces, there is risk of spread of the virus at polling places through droplet, airborne, or environmental surfaces. This is particularly important because we are learning that some people who are infected with the novel coronavirus do not have any symptoms but can transmit the virus and/or are infectious before they develop symptoms<sup>21</sup>. This means that isolating only symptomatic persons will not stop infection as some people may not have symptoms but can still transmit the virus. Instead, we have to assume anyone could be infected and transmit that infection to another person.
15. As Texas opens up, we are seeing an increase in covid-19 cases and hospitalizations with 235 of 254 counties reporting positive test results in their population.<sup>22</sup> On 16 June 2020, the fourteen day average of cases in Texas showed a 63% increase and both hospital and ICU beds have a low availability.<sup>23</sup> The same reports shows that the positivity rate of those tested is increasing and approaching 8%. Texas has neither enough testing<sup>24</sup> nor enough contact tracers<sup>25</sup>, both vital to control the spread of the virus. Given that the State is further opening to phase 3, pursuant to the Governor's Executive Order<sup>26</sup>, we will surely see this increase in number of infected persons continue, in my expert opinion, as this very infectious virus is still prevalent, there is no vaccine, and no herd immunity. Large public gatherings will contribute to the spread. Pushback against non-pharmaceutical interventions such as physical distancing<sup>27</sup> and mask-wearing<sup>28</sup> will only exacerbate transmission of the SARS-CoV-2 virus.
16. In my expert opinion, it is highly likely that the novel coronavirus will continue to be transmitted through this summer and fall. The results of easing community mitigation efforts, as outlined in paragraph 15, have contributed in great part to the surge in cases we are seeing in Texas and this will most likely continue, based on unavailability of vaccine against the virus, lack or minimal of seasonality of the virus, and lack of herd immunity. This prediction also is based on the experience during the 1918 pandemic.<sup>29</sup> Large public gatherings, like those at polling places on election day, are likely to pose a health risk.

<sup>21</sup> Li R, Pei S, Chen B, et al. Substantial undocumented infection facilitates the rapid dissemination of novel coronavirus (SARS-CoV2). Science (New York, NY). 2020

<sup>22</sup> <https://txdshs.maps.arcgis.com/apps/opsdashboard/index.html#/ed483ecd702b4298ab01e8b9cafc8b83> accessed 6/7/20

<sup>23</sup>

[https://www.covidexitstrategy.org/?utm\\_campaign=wp\\_the\\_health\\_202&utm\\_medium=email&utm\\_source=newsletter&wpisrc=nl\\_health202](https://www.covidexitstrategy.org/?utm_campaign=wp_the_health_202&utm_medium=email&utm_source=newsletter&wpisrc=nl_health202) accessed 6/7/20

<sup>24</sup> <https://projects.propublica.org/reopening-america/> accessed 6/7/20

<sup>25</sup> <https://www.texastribune.org/2020/06/05/texas-contact-tracing-workforce-goal/> accessed 6/7/20

<sup>26</sup> <https://dshs.state.tx.us/coronavirus/opentexas.aspx>

<sup>27</sup> <https://www.unacast.com/covid19/social-distancing-scoreboard?view=state&fips=48> accessed 6/7/20

<sup>28</sup> <https://www.texastribune.org/2020/05/22/texas-coronavirus-masks/> accessed 6/7/20

<sup>29</sup> <https://www.cdc.gov/flu/pandemic-resources/1918-commemoration/three-waves.htm> accessed 6/6/20



17. Based on my expertise, it is highly unlikely that a licensed (i.e., FDA-approved and available for mass distribution) vaccine will be available before 12-18 months at the earliest<sup>30</sup>, and it quite likely will be longer than that. Developing a vaccine is both an art and a science and takes time. There are five steps in vaccine development: pre-clinical stage, clinical development, regulatory review and approval, manufacturing, and quality control. The preclinical stage involves studying the physical makeup of the virus and which parts are likely to elicit protective immunity. It is not always clear which portion that should be, so several different attempts may be necessary. There also are many types of vaccines and one being discussed now, mRNA<sup>31</sup>, while theoretically possible, has never been used for a licensed vaccine. Dose and timing of vaccine administration are further variables that need to be evaluated, all of which takes time. Clinical development involves a three-phase process. Phase I is designed to evaluate most frequent and serious adverse effects in a small number of healthy people<sup>32</sup>. Once that is determined, the clinical trials are expanded to a larger group of persons whose characteristics (age and physical health) are similar to those for whom the new vaccine is intended. In Phase III, the efficacy and safety of the vaccine is tested in thousands of people. Whether or not the vaccine protects can be difficult to assess and requires a long time as it would be unethical to expose volunteers to the virus to see if they become infected. It also takes a long time to determine if the vaccine causes side effects, as these issues may not become apparent for months. Once a candidate vaccine is deemed safe and effective, manufacturing capacity must be geared up to produce the vaccine on a large scale. Quality control for the vaccine in this increased production is extremely important. Vaccines are given to healthy people and so the bar for safety and effectiveness must be higher than for drugs given to sick people who may be more willing for trade-offs if there are no other options. Another issue in developing vaccine candidates is efficacy in populations for whom the vaccine is particularly important. While every person is at risk of infection if they do not have antibodies, infection is particularly likely to have severe outcomes in vulnerable populations such as older individuals and those with underlying medical conditions. A vaccine that works well in a young, healthy population may not be efficacious in these subpopulations whose immune response is suboptimal and so further vaccine work may be required to protect those most at risk.
18. Herd immunity happens when a high percentage of people in a community become immune to an infectious disease (one that is spread person to person) that it stops or slows down the disease from spreading. This can happen through natural infection or through vaccination. In most cases, 80-95% of the population needs to be immune for herd immunity to take place. Herd immunity protects those in the community who cannot be vaccinated and for whom infection may be very serious, e.g., babies, seniors, immunocompromised, cancer patients.<sup>33</sup> Based on my experience, without herd immunity in place, it is highly unlikely that the novel coronavirus will disappear by itself. As it is a new virus, no one in the world is immune (except for those who in the last few months have gotten infected and recovered) and serological prevalence studies show an

<sup>30</sup> <https://www.cdc.gov/vaccines/basics/test-approve.html> accessed 4/10/20

<sup>31</sup> <https://www.nih.gov/news-events/news-releases/nih-clinical-trial-investigational-vaccine-covid-19-begins>

<sup>32</sup> <https://www.clinicaltrials.gov/ct2/help/glossary/phase> accessed 4/10/20

<sup>33</sup> <https://www.healthline.com/health/herd-immunity#how-it-works> accessed 4/10/20



average of 4-5% of various populations with antibodies, although we don't have tests for antibodies to determine immunity widely available, it is unlikely that a high percent of the population is immune. Another caveat is that we do not know how immunity to this new virus lasts and whether reinfection can occur with the novel coronavirus. However, decades of research on other coronaviruses have shown that protective immunity is short-lived.<sup>34</sup> This means that achievement of herd immunity is unlikely to happen before a vaccine is available.

19. Some viruses are more active during certain seasons of the year, referred to as virus seasonality. The novel coronavirus is a new type of virus and so it is difficult to say whether it will exhibit seasonality and whether the virus will disappear in the summer months. However, we can study the seasonality of other coronavirus such as SARS and MERS-CoV.<sup>35</sup> In both these cases, there does not appear to be a seasonality of infection.<sup>36</sup> We also know that the virus has circulated widely in countries with hot, humid seasons right now such as Singapore and Australia.<sup>37</sup> A report from an expert panel at the National Science Academies has predicted that we are unlikely to see a diminution of activity of SARS – CoV-2 in the summer.<sup>38</sup> Other experts agree.<sup>39</sup> There is some evidence, however, that high humidity can slow down transmission.<sup>40</sup> However, the opposite also appears to be the case, that is lower humidity in the winter months, including November, leads to enhanced transmission.<sup>41</sup> While this is a new virus and we don't completely understand its epidemiology, as a public health expert, I, and other experts, are fairly confident we will see increased spread of the virus in the fall and winter.<sup>42,43,44</sup>
20. In my expert opinion, vote by mail is a safer option for public health and safety than in person voting, in the likely event that the virus will be circulating during voting season. There is no evidence the virus can be spread by paper, including mail.<sup>45</sup> Voting by mail would prevent close interactions and prevent virus transmission between voters, while in line, signing in, and casting votes as well as eliminate possible spread on environmental surfaces, such as voting machines. Not just voters would be at risk of infection, but poll workers as well who are often older and at an increased risk of severe outcome should

<sup>34</sup> <https://www.medrxiv.org/content/10.1101/2020.05.11.20086439v1.full.pdf>

<sup>35</sup> <https://www.ncbi.nlm.nih.gov/pubmed/15522683>

<sup>36</sup> <https://www.nap.edu/catalog/25771/rapid-expert-consultation-on-sars-cov-2-survival-in-relation-to-temperature-and-humidity-and-potential-for-seasonality-for-the-covid-19-pandemic-april-7-2020>

<sup>37</sup> <https://www.cnn.com/2020/03/12/asia/coronavirus-flu-weather-temperature-intl-hnk/index.html>

<sup>38</sup> <https://www.nap.edu/catalog/25771/rapid-expert-consultation-on-sars-cov-2-survival-in-relation-to-temperature-and-humidity-and-potential-for-seasonality-for-the-covid-19-pandemic-april-7-2020>

<sup>39</sup> <https://time.com/5805368/will-coronavirus-go-away-world-health-organization/> accessed 3/23/20

<sup>40</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7187824/>

<sup>41</sup> <https://onlinelibrary.wiley.com/doi/pdf/10.1111/tbed.13631> accessed 6/5/20

<sup>42</sup> <https://www.cnet.com/how-to/a-second-wave-of-coronavirus-when-it-could-come-how-long-it-could-last-and-more/> accessed 6/6/20

<sup>43</sup> <https://www.ama-assn.org/delivering-care/public-health/harvard-epidemiologist-beware-covid-19-s-second-wave-fall> accessed 6/6/20

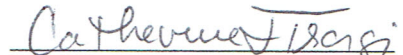
<sup>44</sup> <https://www.ecowatch.com/coronavirus-second-wave-2646019222.html?rebelltitem=3#rebelltitem3> accessed 6/6/20

<sup>45</sup> <https://www.cdc.gov/coronavirus/2019-ncov/faq.html#How-COVID-19-Spreads>

they become infected. Transmission is a significant risk at polling places because people with undocumented infections (those without symptoms or those who are infectious before they have symptoms) are contributing to spread of the virus<sup>46</sup>. Therefore, a voter going to the polls could infect others without knowing they themselves are infected. Voters and/or poll workers who become infected with the SARS-CoV-2 virus can spread the infection to others in their household who may be more vulnerable to a serious outcome.

21. My date of birth is October 20, 1952, and my address is 3812 Ruskin St., Houston, TX, 77005 and Harris County. I declare under penalty of perjury that the foregoing is true and correct.

Executed in Harris County, State of Texas, on the 18th day of June 2020.

  
Declarant

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<sup>46</sup> <https://science.sciencemag.org/content/early/2020/03/24/science.abb3221>